

Appl. No. 10/634,772
Amendment dated June 21, 2007
Reply to Office Action of March 21, 2007

ASA-1144

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Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

1. (Currently Amended) A biomagnetic field measuring apparatus comprising:
 - means for shielding external magnetic fields;
 - a bed for supporting a pregnant female~~an examinee~~;
 - at least one single unit or a plurality of units of SQUID magnetometersfor detecting a biomagnetic field generated by said the pregnant female~~examinee~~;
 - a cryostat for keeping the at least one~~said~~ SQUID magnetometers at a low temperature;
 - a drive circuit for driving the at least one~~said~~ SQUID magnetometers;
 - a processing unit for collecting output signals of the~~said~~ drive circuit and processing the~~said~~ output signals; and
 - a display unit for displaying results of the~~said~~ processing,
- wherein the~~said~~ processing unit performs (1) a process for obtaining a waveform of a fetal heart by removing a magnetic field waveform generated by a heart of the pregnant female~~a mother's heart from a biomagnetic field waveform measured of the pregnant female~~, (2) a process for obtaining a first template waveform of the a magnetic field waveform of the fetal heart~~generated by a fetal heart from a waveform, from which said magnetic field waveform generated by said maternal heart has been removed~~, (3) a process for obtaining a waveform of a cross correlation coefficient between the~~said~~ waveform of the fetal heart~~from which said magnetic field waveform generated by said maternal heart has been removed~~ and

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thesaid first template waveform, and (4) a process for detecting peaks from the waveform of thesaid cross correlation coefficient, and wherein timingses at which detected peaks occurred are displayed on thesaid display unit.

2. (Currently Amended) A biomagnetic field measuring apparatus according to Claim 1, wherein thesaid process (1) includes a process for obtaining a second template waveform of thesaid magnetic field waveform generated by the said maternal-heart of the pregnant female, a baseline correcting process for zeroing the values at an initial point and an end point of thesaid second template waveform, and a process for removing thesaid second template waveform, on which thesaid baseline correcting process has been performed, from thesaid measured biomagnetic field waveform.

3. (Currently Amended) A biomagnetic field measuring apparatus according to Claim 2, wherein thesaid process (1) is performed by using as a reference signal the pregnant female'ssaid mother's electrocardiographic waveform measured concurrently with the detection of thesaid biomagnetic field waveform.

4. (Currently Amended) A biomagnetic field measuring apparatus according to Claim 1, wherein in thesaid process (2), thesaid first template waveform is obtained by a sum-averaging process.

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5. (Currently Amended) A biomagnetic field measuring apparatus according to Claim 2, wherein thesaid second template waveform is obtained by a sum-averaging process.

6. (Currently Amended) A biomagnetic field measuring apparatus according to Claim 1, further comprising a plurality of SQUID magnetometers and wherein thesaid process (3) includes a process for obtaining waveforms of thesaid cross correlation coefficients from waveforms of thesaid biomagnetic fields measured by each SQUID magnetometer of thesaid plurality of SQUID magnetometers and a process for obtaining an average waveform of thesaid waveforms of thesaid plurality of cross correlation coefficients obtained, and wherein thesaid average waveform is used as the waveform of thesaid cross correlation coefficients.